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PHOTOGRAPHIC INTERPRETATION REPORT



SELECTED
NORTH VIETNAMESE
ECONOMIC AND MILITARY
ACTIVITY
30 JUNE THROUGH
31 AUGUST 1968

NPIC/R-108/68
OCTOBER 1968

Declass Review, NIMA/DoD

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PHOTOGRAPHIC INTERPRETATION REPORT

SELECTED NORTH VIETNAMESE ECONOMIC AND MILITARY ACTIVITY

30 JUNE THROUGH 31 AUGUST 1968

OCTOBER 1968

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

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SUMMARY

This report is the second in a series on photographic evidence of North Vietnamese reactions to the U.S. bombing restriction which began on 31 March 1968. The information contained reflects interpretations performed by NPIC during July and August 1968. It is emphasized that during the period covered by this report significant limitations of imagery derived information have been imposed by the sparsity of coverage above the 19th parallel. However, those examples selected are considered to be significant as well as representative.

Aerial photography has revealed that the North Vietnamese are continuing an open effort to improve their military and industrial posture. Reconstruction has been completed on the Paul Doumer Rail/Highway Bridge and it is now serviceable to both rail and vehicular traffic. Renewed activity at driver-training courses in the Vinh Yen area is also observed.

Shipping activity continues at a vigorous pace. Photography of [REDACTED] revealed the presence of 44 merchant ships in the Haiphong port area, the highest number ever observed at one time. A salvaged S.O.1 subchaser and several new river tugboats are also observed in the port. Maintenance/repair work is continuing in the port.

There has been a marked increase in the MIG-21 air order of battle. Significant activity is also noted at Kep and Hoa Lac Airfields and an attempt is apparently being made to repair Vinh Airfield. The highest number of occupied SAM sites was observed in [REDACTED] in the Hanoi/Haiphong area. There have been 13 sightings of modified FAN SONG radars to date.

The North Vietnamese are continuing to improve their industrial capability. Repair activity is noted at the Haiphong Cement Plant and continued construction of protective measures around the major power plants is observed. Movement of POL south is exemplified by transfer activity in the Nam Dinh area. A POL pipeline has been identified south of the 19th parallel in the Vinh area.

In other developments, three probable command and control centers are seen in Haiphong and a group of approximately 350 personnel, believed to be infiltrators, are observed on Route 1597 in southern North Vietnam. This is the largest number of personnel ever observed on photography along any infiltration route. Eight 122mm FA guns are observed in a rail yard on the Hanoi-Ping Hsiang, Hanoi-Lao Cai Rail lines.

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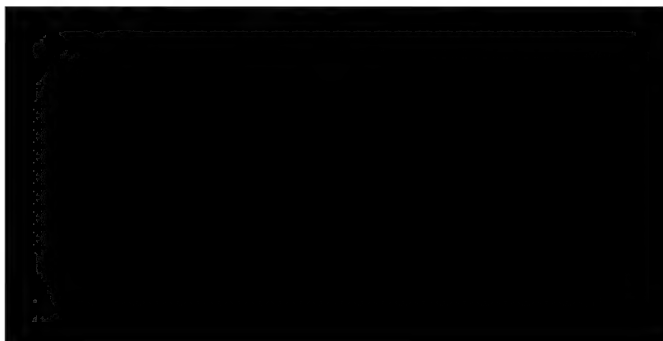
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KEY TO MAP*

1. Paul Doumer Railroad/Highway Bridge
2. Repair Activity at Haiphong Cement Plant
3. Protective Measures Around North Vietnam's Major Power Plants
4. POL Transfer Activity, Nam Dinh
5. Shipping Activity, Haiphong
6. Salvaged S.O.1 Class Subchaser
7. Air Activity
8. Probable Command and Control Centers
9. Driver Training, Vinh Yen
10. SA-2 (SAM) Site Occupancy and Modified FAN SONG Radar Sightings
11. Probable Infiltration Activity
12. Field Artillery Transshipment Activity
13. POL Pipeline, South of 19th Parallel

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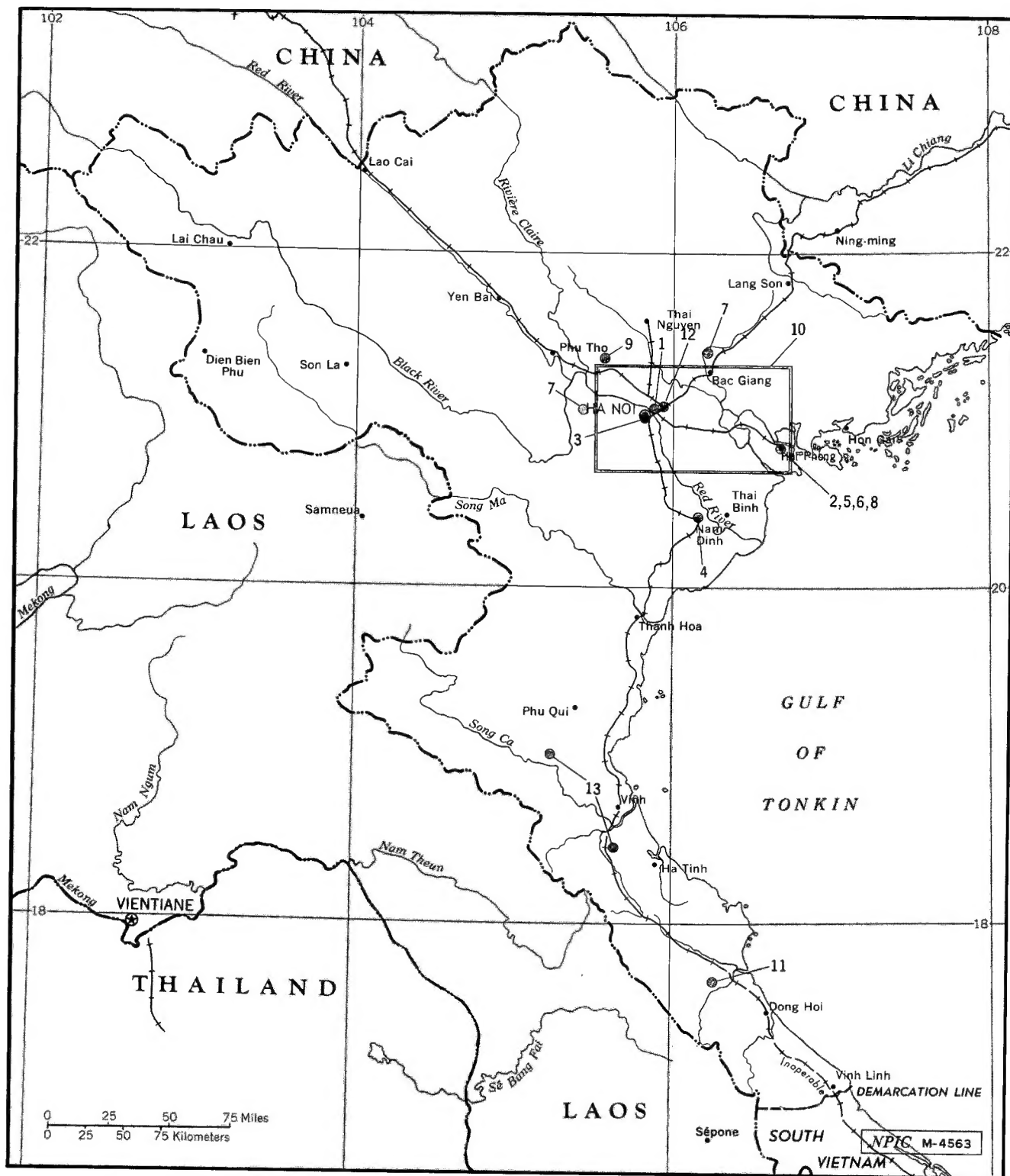


FIGURE 1. GENERAL LOCATION MAP.

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1. Paul Doumer Railroad/Highway Bridge

The North Vietnamese have continued the rapid reconstruction of this bridge since [REDACTED] photography (Ref: NPIC-R/84/68). The bridge was possibly serviceable on [REDACTED] when all the spans were observed in place. However, the first firm evidence of its serviceability was revealed on photography of [REDACTED]

At this time the highway decking

was complete and a vehicle was observed crossing. On subsequent photography rails have been observed on the bridge, making it now serviceable to both road and rail traffic (Figure 2).

This combination road and railroad bridge over the Red River is located just northeast of Hanoi on Route 1A, the main rail and highway linking Hanoi with China, Haiphong, and Thai Nguyen.

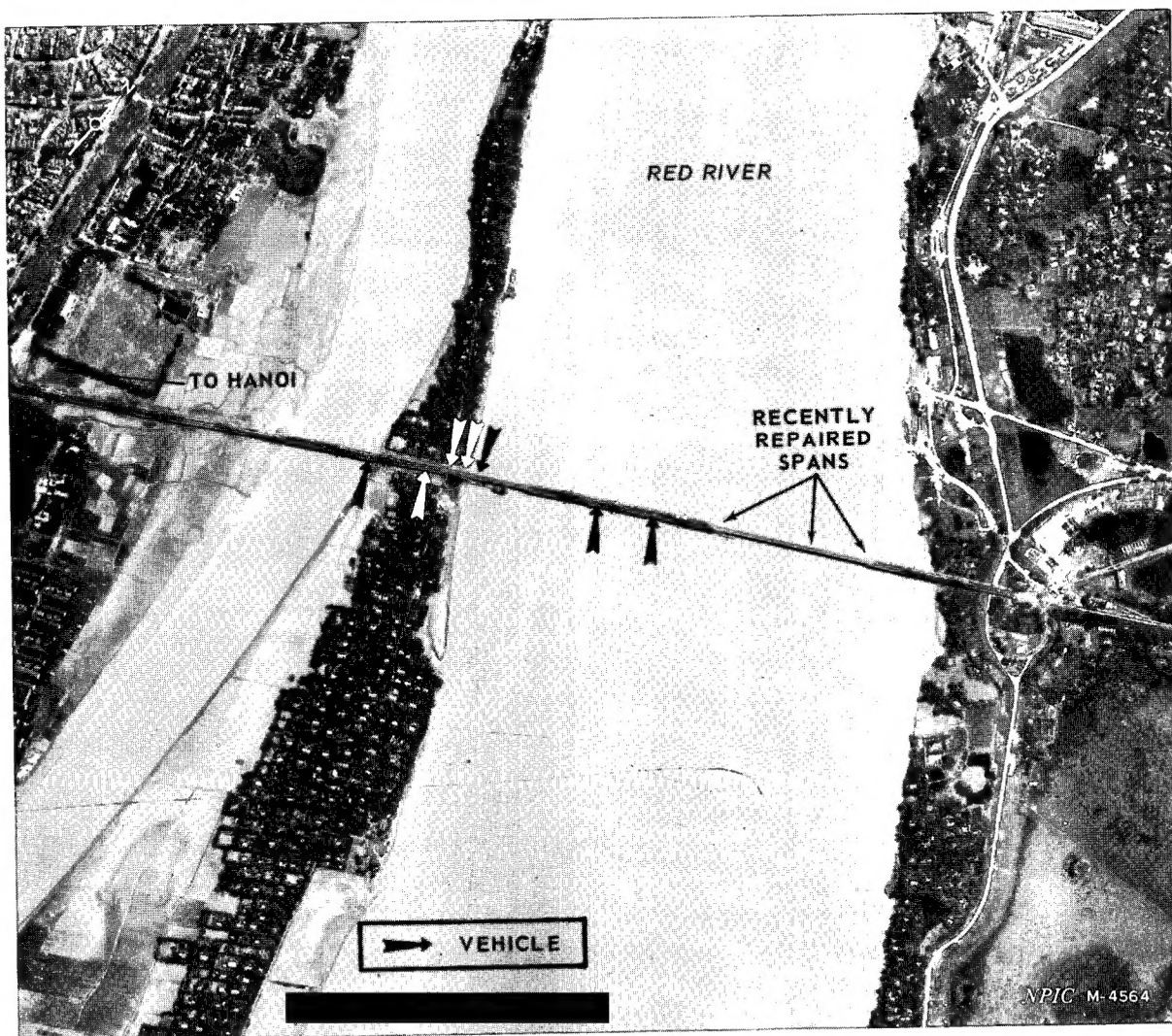


FIGURE 2. PAUL DOUMER RAILROAD/HIGHWAY BRIDGE.

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2. Limited Repair Activity, Haiphong Cement Plant

Recent photography reveals that the Haiphong Cement Plant () is capable of limited production and is undergoing continued repairs. The plant was struck in and remained inoperable until

Photography of reveals possible repair work on a second kiln and the recent stockpiling of coal in the coal storage area. The crushing and grinding as well as the coal treatment areas appear to be in operation;

at this time (Figure 3). High altitude photography of revealed that the plant was probably in operation.

The repairs will permit only limited production. Full operation of the plant cannot be realized without major reconstruction, more extensive than the present effort. This would necessitate the importation of most major component parts.

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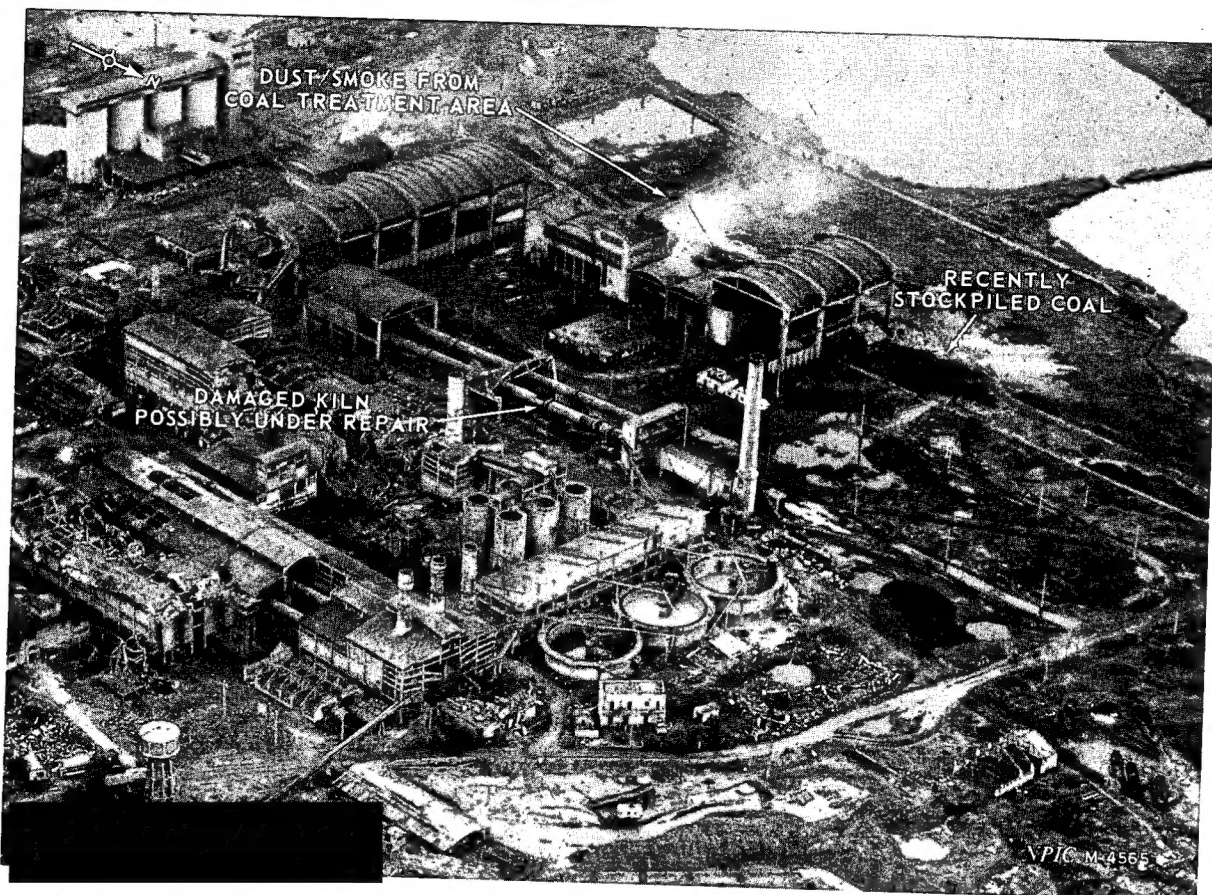


FIGURE 3. REPAIR ACTIVITY, HAIPHONG CEMENT PLANT

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3. Protective Measures at Major Power Plants in North Vietnam

Various protective measures and adaptations are being employed at the major power plants in North Vietnam to maintain and protect their operational status. The most recent of these adaptations has been the construction of blast walls around the plants for protection from air strikes. This construction is continuing and may indicate a concern by the North Vietnamese over a possible resumption of bombing. Only minor exterior repairs have been observed to date.

The blast wall at the Hanoi Power Plant exemplifies the blast walls presently under construction at eight thermal power plants in North Vietnam. Photography of [REDACTED]

25X1D

[REDACTED] reveals a nearly completed blast wall at the Hanoi plant (Figure 4), North Vietnam's largest power producer. The wall rises to roof level and encompasses 90 percent of the facility. This was the only wall begun prior to the bombing cessation. Other power plants with similar blast walls under construction are at Bac Giang, Nam Dinh, Haiphong, Thai Nguyen, Hon Gai, Uong Bi, and Ben Thuy.

[REDACTED] photography revealed a possible blast wall under construction at the Viet Tri Thermal Power Plant, which would bring the total number of plants with blast walls under construction to

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that were observed during U.S.

electrical equipment apparent and with no smoke or steam being emitted from the smoke stack. Other modifications include the construction of temporary intake and discharge water systems to replace those that have been damaged and the relocation of coal piles for direct loading into the boilerhouse, bypassing the coal processing buildings.

The adaptations have helped maintain the operational status of most of the damaged power plants. Eleven of the 15 power plants damaged by U.S. air strikes are currently operational. Two of the four inoperative plants are located below the 19th parallel and are still subject to U.S. bombing. Eight more power plants were never bombed, bringing the total of presently operating power plants to nineteen.

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FIGURE 4. PROTECTIVE MEASURES, HANOI POWER PLANT

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4. Petroleum Transfer Activity, Nam Dinh

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The first evidence of type "46" and "47" coasters transferring petroleum to fuel tank trucks at a newly identified POL transfer point 2 nm northeast of Nam Dinh is revealed on low level drone photography of [REDACTED]. These vessels have previously been associated with the transport of dry cargo. Five fuel tank trucks and twelve underground tanks are observed in the transshipment area. Also observed in the area are three additional type "47" coasters, five type "46" coasters (probably also petroleum carriers), a small sampan carrying probable POL drums, and another possible POL carrier (Figure 5).

This type of transfer activity has been observed in four other instances since the bombing cessation of 31 March 1968. This activity was observed in [REDACTED] in the Haiphong area. Similar activity had not been observed prior to this time, however, the watercraft participating in the activity photographed in [REDACTED] were conventional POL barges not cargo types. Type "46" and "47" coasters have been seen in Thanh Hoa and as far south as the Vinh area. It is now probable that watercraft are being used to facilitate the flow of POL to the southern reaches of North Vietnam.

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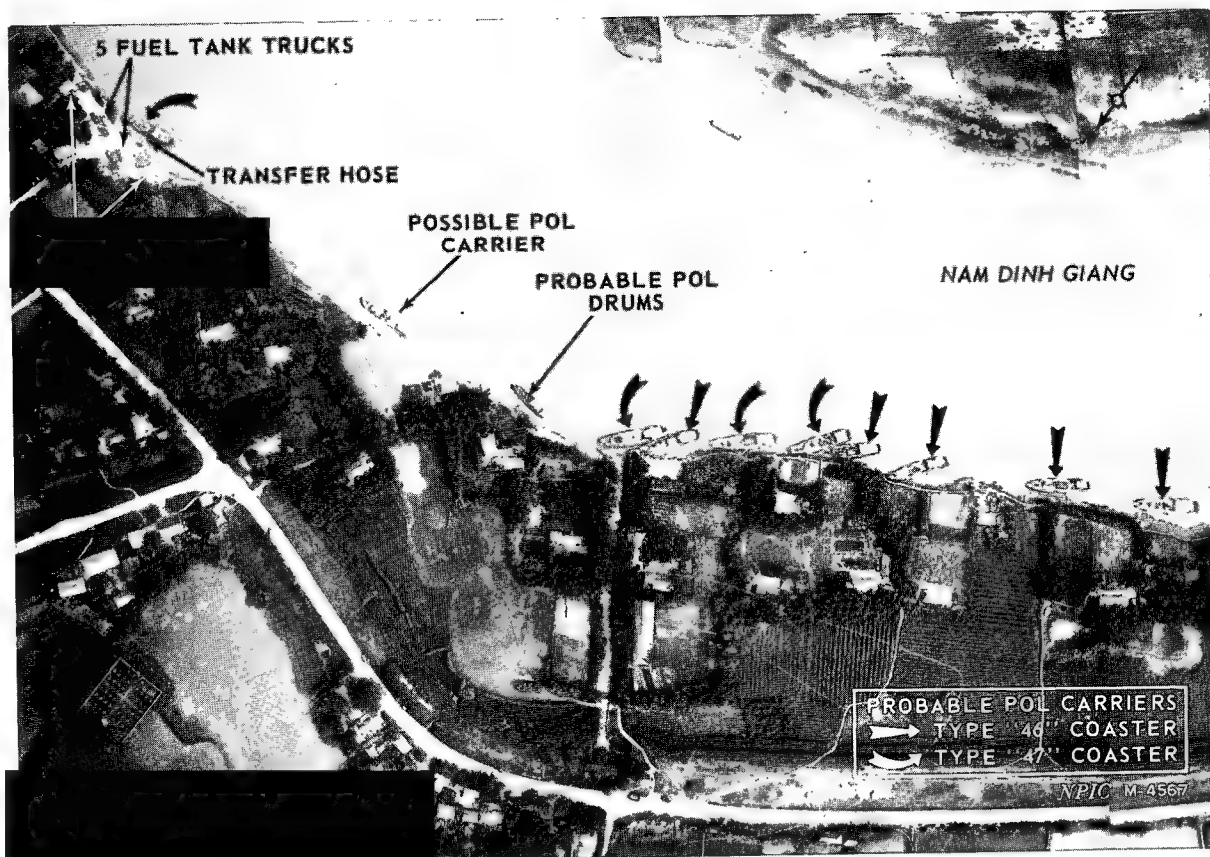


FIGURE 5. POL TRANSFER ACTIVITY, NAM DINH.

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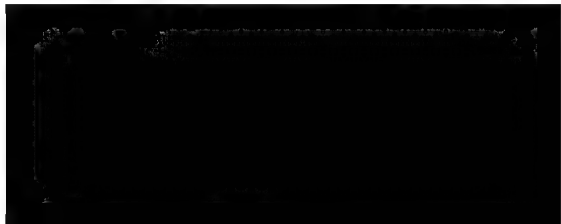
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5. Shipping Activity

Activity at the port of Haiphong continued at a high level during [REDACTED]. High altitude photography of [REDACTED] revealed the presence of 44 merchant ships in the port area. This is the highest number of ships observed in the Haiphong area on one day since [REDACTED] when 31 ships were seen.

Construction/Repair activity is continuing in the port area. The new quay under construction at the Chamber of Commerce Wharves has been flooded as a result of the recent heavy rains and the amount of damage cannot be accurately determined. However, when finally completed, the new quay will have berthing space for two additional ocean-going vessels. Repair and replacement is continuing on the already existing wharves (Figure 6).

The suction dredge [REDACTED], which had been observed operating in the Hon Gai and outer bar areas, is now in Haiphong. The bucket dredges [REDACTED] are also observed operating in the channel. These are the three largest dredges the North Vietnamese possess and they appear to be carrying on normal channel maintenance. In addition to the dredges, a large number of tugboats have been observed in the port area.



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FIGURE 6. SHIPPING ACTIVITY, HAIPHONG PORT.

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6. Salvaged S.O.1 Subchaser

An S.O.1 submarine chaser (SC), stripped of all armament, is observed moored at the Haiphong Naval Base [REDACTED] on [REDACTED] low level drone photography. The radar mast and the POT HEAD radar are still in the horizontal position and the engines are still in place. Overall, the vessel is in poor condition (Figure 7).

The North Vietnamese are known to have four S.O.1 submarine chasers in their inventory. Two of these are operational and have been regularly seen in Haiphong. The other two vessels were struck by U.S. aircraft in July 1966 in the offshore island area of North Vietnam. Subsequently one of these S.O.1 SCs was observed capsized off the north side of the Ile De L'Entree. The other vessel was apparently towed to Haiphong where it has remained bottomed at the

naval base finger pier.

Photographic research reveals that the capsized S.O.1 SC is no longer on the north side of the Ile De L'Entree. The vessel in Haiphong is in such poor condition that it is not likely it is a newly acquired vessel. Since there is no information to indicate that the North Vietnamese have obtained any S.O.1 SCs from a foreign source it is a strong probability that the capsized vessel in the islands and the one moored in Haiphong are the same vessel. The North Vietnamese probably took advantage of the bombing pause to salvage this vessel.

Since the salvaged S.O.1 SC was first observed in Haiphong in late [REDACTED] subsequent photography of [REDACTED] has revealed that it is in drydock at the Haiphong Naval Base.

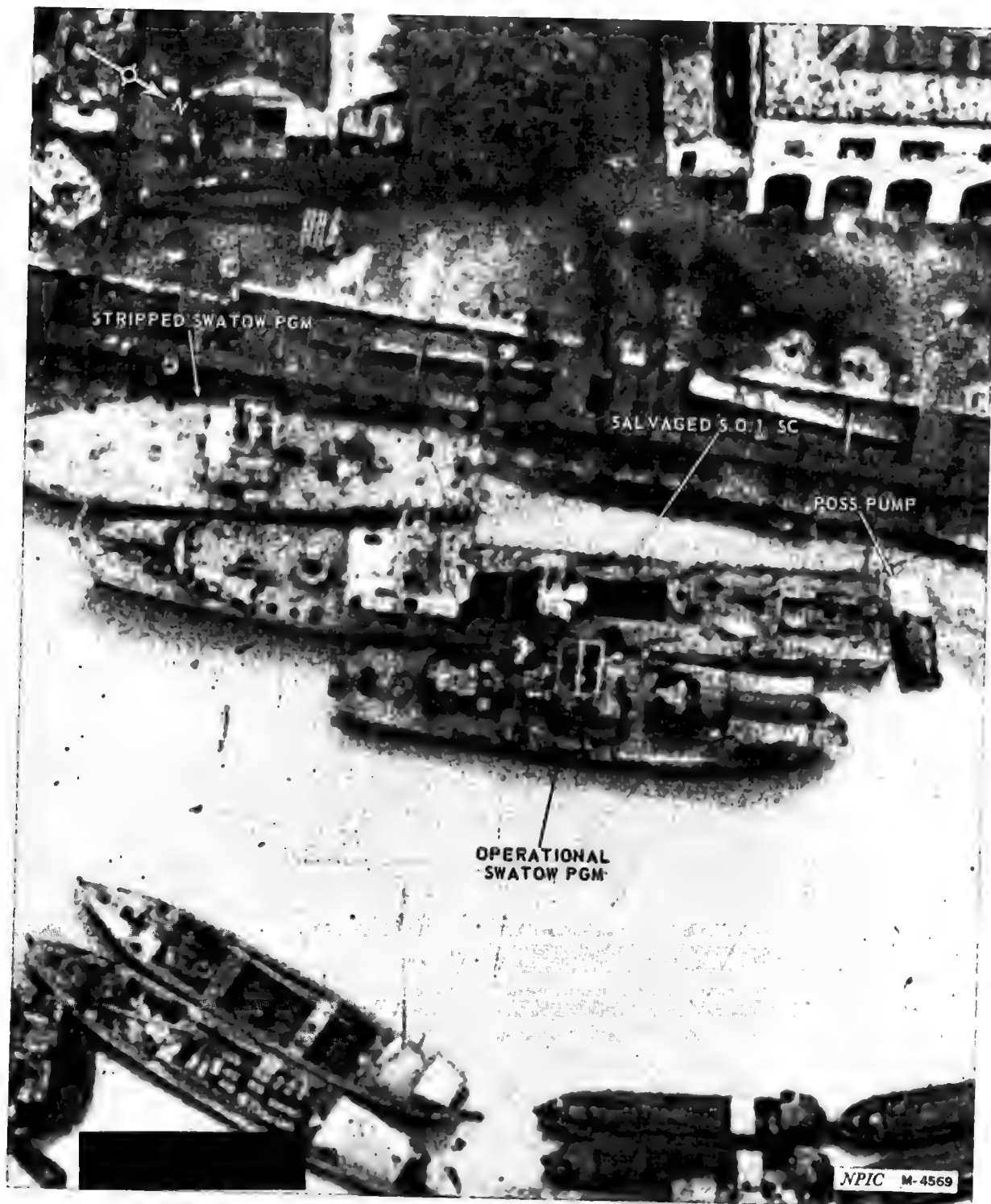
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FIGURE 7. S.O.I SC, HAIPHONG NAVAL BASE

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7. Air Activity

The North Vietnamese are continuing to improve and upgrade their airfields and to increase the air order of battle. The most extensive activity during [REDACTED] was observed at Kep and Hoa Lac Airfields.

Increased construction activity began at Kep Airfield in [REDACTED] immediately after the bombing cessation. Completion of a runway extension and the initial stages of construction on a new runway were observed on [REDACTED] photography. This new runway will probably be 6,100 x 150 feet and oriented NNW/SSE when completed. In addition, [REDACTED] photography revealed the beginning of construction on an overrun at the SW end of the runway. New distance markers are also

observed on the runway (Figure 8).

Hoa Lac Airfield now has three serviceable runways. The probable completion of the E/W secondary concrete runway was observed on [REDACTED] photography and the conversion of the NE/SW taxiway, first observed in [REDACTED] now appears complete. The completion of this construction gives Hoa Lac two additional secondary serviceable runways. This makes it the only airfield in North Vietnam with three serviceable runways (Figure 9). The recent observation of MIG-21 aircraft at this airfield along with the completion of the two secondary runways could indicate an effort by the North Vietnamese to make Hoa Lac Airfield the major MIG fighter base in the country.

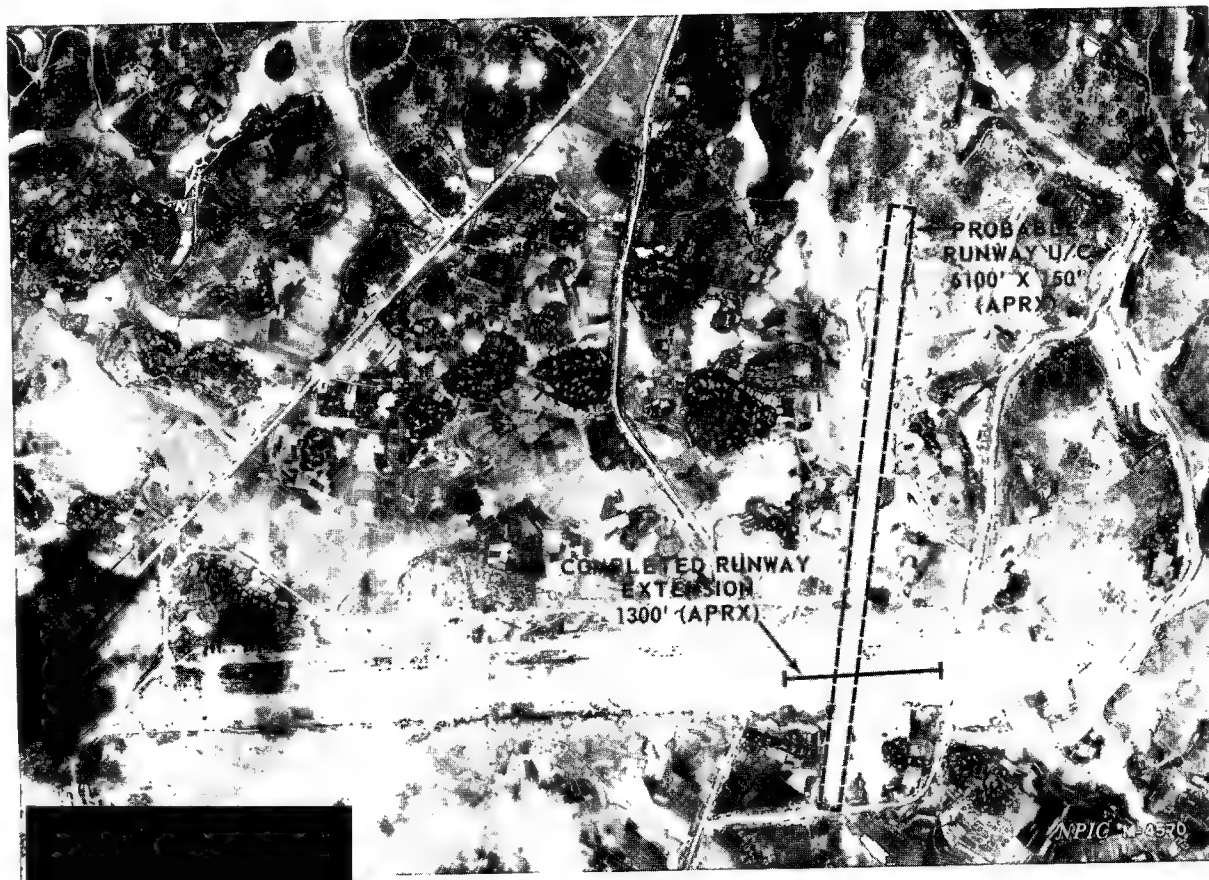


FIGURE 8. RUNWAY CONSTRUCTION, KEP AIRFIELD.

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There has been a major increase in the MIG-21 (FISHBED) air order of battle in North Vietnam. Twenty-eight FISHBED and one possible FISHBED were observed on photography of the major airfields on [REDACTED]. The previous high had been 21 FISHBED observed on [REDACTED] photography. Prior to the bombing cessation the average MIG-21 strength in North Vietnam was 8 to 10 aircraft. In another air order of battle development, photography of [REDACTED] revealed the presence of five MIG-15/17 (FAGOT/FRESCO) at Hai-phong/Kien An Airfield. These were the first aircraft observed at this airfield since [REDACTED].

Photography of [REDACTED] reveals an

apparent attempt by the North Vietnamese to return Vinh Airfield to a serviceable condition. Subsequent to [REDACTED] a concerted effort was made to use Vinh Airfield but it was subjected to such heavy U.S. airstrikes that these efforts were apparently abandoned. Now repair attempts are noted once more. Although no activity is observed on the main runway or support facilities, several craters have been filled and others are being filled on the adjacent landing strip. This is possibly an indication that the North Vietnamese would like to use Vinh as an emergency recovery base in support of air operations over the Panhandle area and the DMZ.

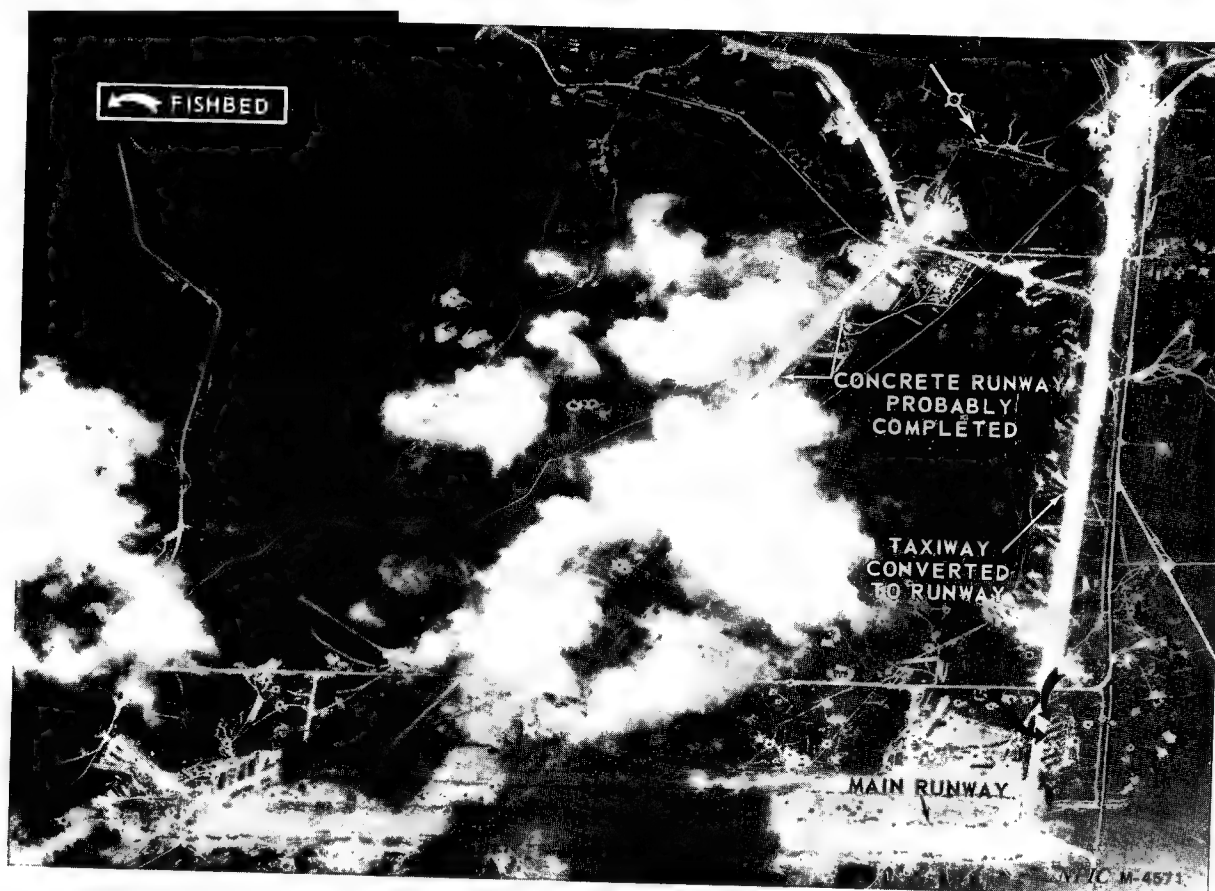


FIGURE 9. NEW RUNWAYS, HOA LAC AIRFIELD.

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8. Probable Command and Control Centers

There are three probable command and control centers in Haiphong, two are in an advanced state of hardening and the third is in the early stages of construction. It is believed that these centers are taking over the activities of the previously reported area air defense headquarters. The headquarters at Doan Xa has been completely dismantled and [REDACTED] photography of the installation in Haiphong revealed a considerable decline in activity.

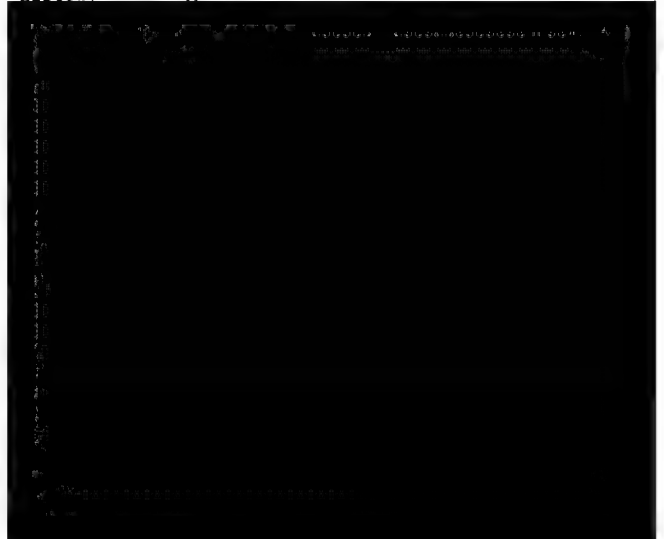
The first installation consists of a heavily bunkered partially underground building connected by a deep reinforced communications trench to an above surface building directly to the north. Fixtures on the roof of the bunker appear to be ventilators or transformers and power/communication line lead-ins (Figure 10). Land communication and power lines enter the area from two directions.

The second installation is revealed on [REDACTED] photography to be completely below ground

and appears to be covered by a concrete slab. This building was first observed in [REDACTED]

[REDACTED] and is now in the late stages of construction.

The third installation, first observed in the excavation stage in [REDACTED], now appears to be taking shape as a cube-shaped building completely below ground.



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FIGURE 10. PROBABLE COMMAND AND CONTROL CENTER, HAIPHONG.

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9. Driver-Training Activity, Vinh Yen

Several driver-training areas were observed in North Vietnam in the past. However, activity at these areas was severely limited due to U.S. bombing and it is possible that this caused a shortage of qualified drivers. Since the bombing cessation several of these areas have been reactivated. High altitude photography

of [REDACTED] reveals two driver-training areas, each containing about 25 vehicles, in the vicinity of Vinh Yen.

The first area is located at the old Tong Airfield where the sod runway is being used for training purposes. The area contains numerous figure-eights and circular road patterns.



FIGURE 11. DRIVER TRAINING, TONG AIRFIELD.

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Thirteen vehicles are operating on the figure-eight course and the remaining vehicles are scattered throughout the area (Figure 11). Tong has not been considered an operational airfield since two COLTs were observed there in [REDACTED]

The other area observed is located approximately 6.5 nm ESE of the center of the Vinh

Yen military complex and consists of two road-connected driving areas containing numerous figure-eight driving patterns interconnected by a circular road network. Ten vehicles are observed negotiating the figure-eight patterns, and the other vehicles are at various points in the driver-training area (Figure 12).

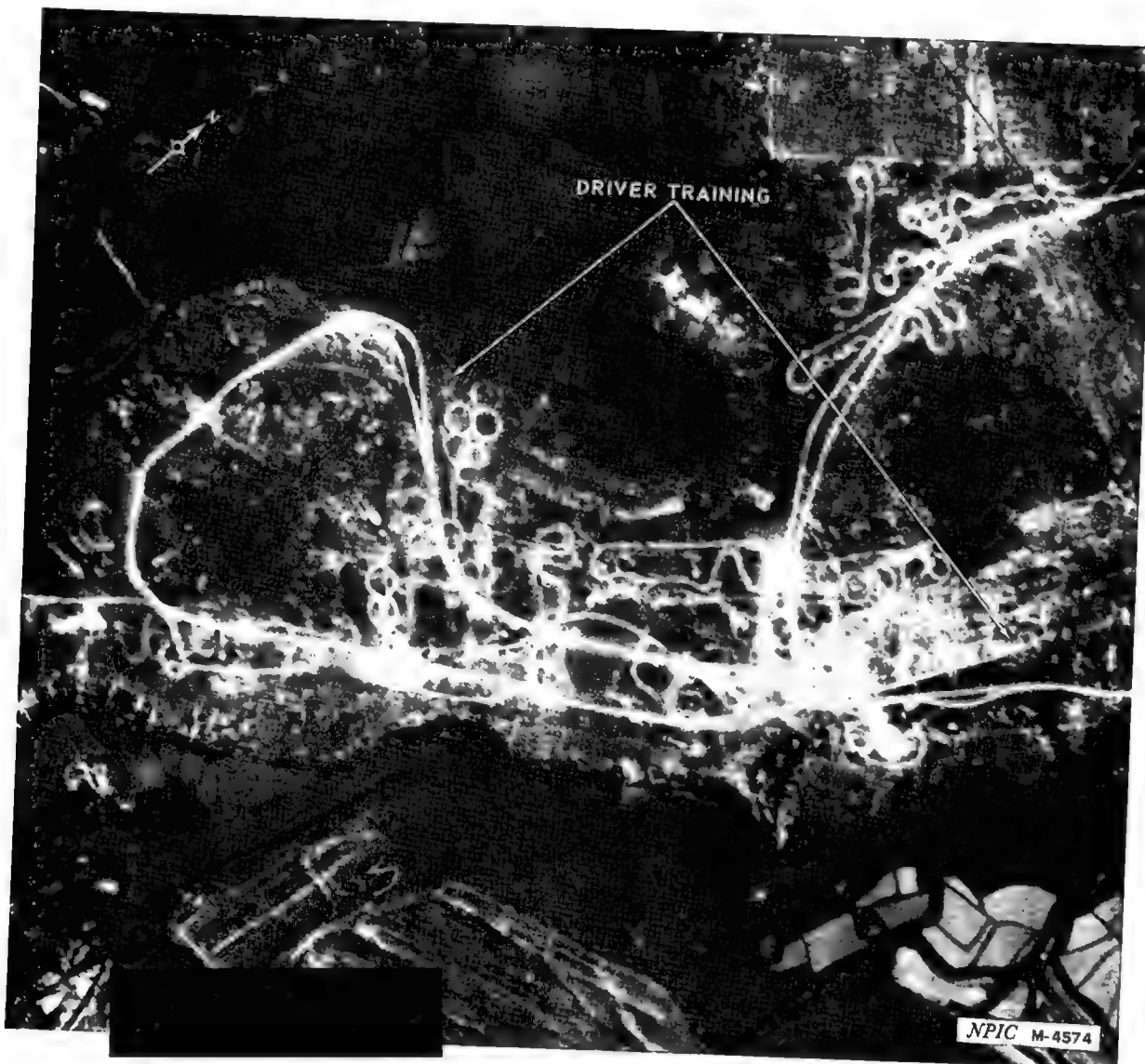


FIGURE 12. DRIVER TRAINING, VINH YEN.

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10. SA-2 (SAM) Activity and Modified FAN SONG Radar Sightings

Photography of [REDACTED] reveals 29 occupied SAM sites in the Hanoi/Haiphong area (Figure 13). This is the highest NPIC count to date on one mission. The previous high was 24 occupied sites observed on [REDACTED] photography. In addition two new sites (313 and 314) have been found in the southern area. The large number of occupied SAM sites in the Hanoi/Haiphong area is apparently in addition to the occupied sites in the southern part of the country and does not therefore represent a weakening of the SAM defenses

in that part of the country.

The number of modified FAN SONG radars identified at North Vietnamese SAM sites now stands at 13 -- eleven in the Hanoi area and two in the Haiphong area. The exact number can not be determined since only four of these could be identified on any one mission. As yet no significant deployment pattern has emerged (Figure 13).

The modified FAN SONG was first observed on low level drone photography of [REDACTED]. Neither its exact function nor its origin have yet been determined.

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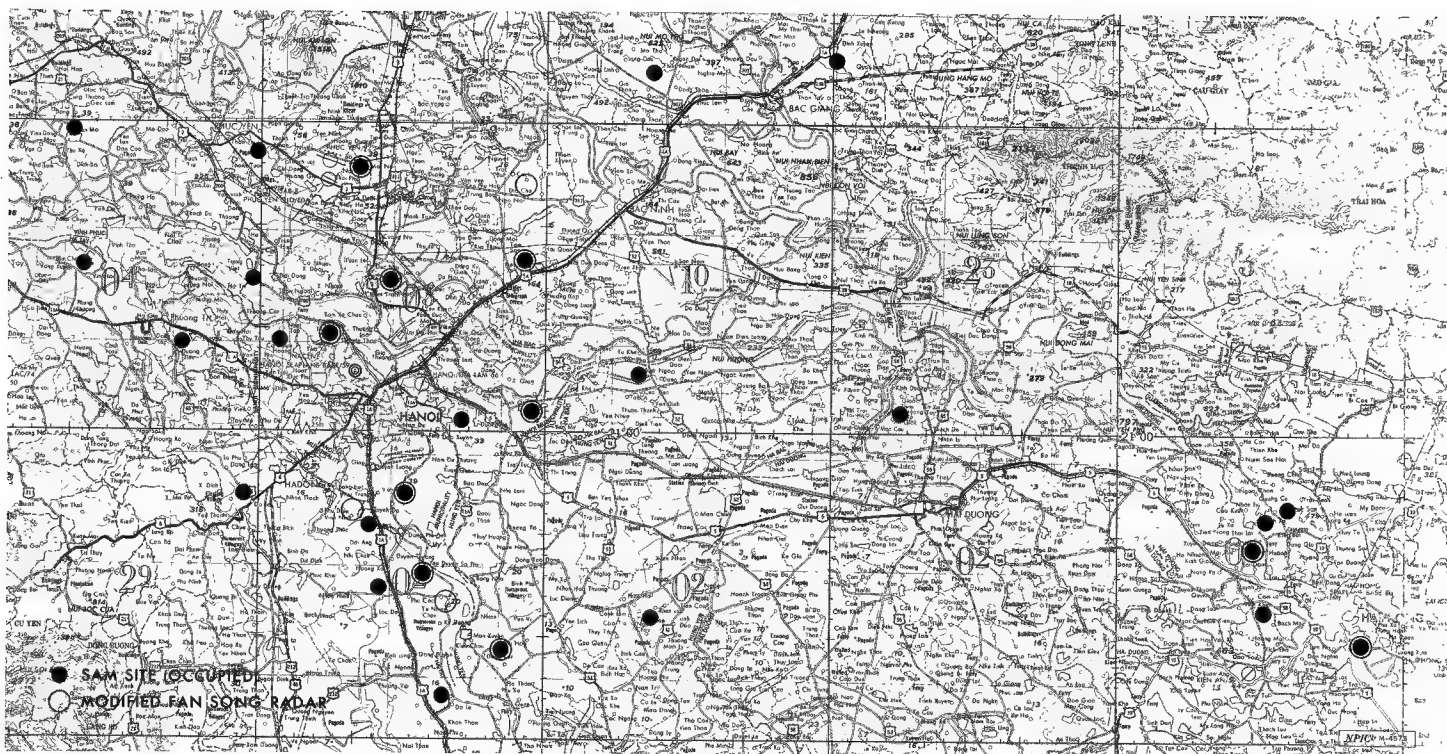


FIGURE 13. SAM OCCUPANCY OBSERVED ON [REDACTED] AND MODIFIED FAN SONG RADAR SIGHTINGS.

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11. Probable Infiltration Activity

Probable infiltration activity was observed on photography of [REDACTED]. A column of at least 350 personnel and 12 probable pack animals were moving in a southerly direction towards Laos along a one mile segment of Route 1597. Although personnel have been previously observed along this route in small numbers, this is the first time that a group of this magnitude has been observed on photography. The activity is located at 18-02N 105-47E, approximately 25 nm from the Mu Gia Pass.

The personnel are moving in single file down the center of the road and are separated at intervals of approximately 20 to 30 feet with the pack animals interspersed between them (Figure 14). Route 1597 joins Route 15 approximately 4 nm to the southeast. Route 15 has been one of the major routes for the infiltration of personnel and equipment through Mu Gia Pass. Other alternate routes accessible from Route 1597 are Route 101 which generally parallels the coast and Route 137 which leads into Laos from Route 101.

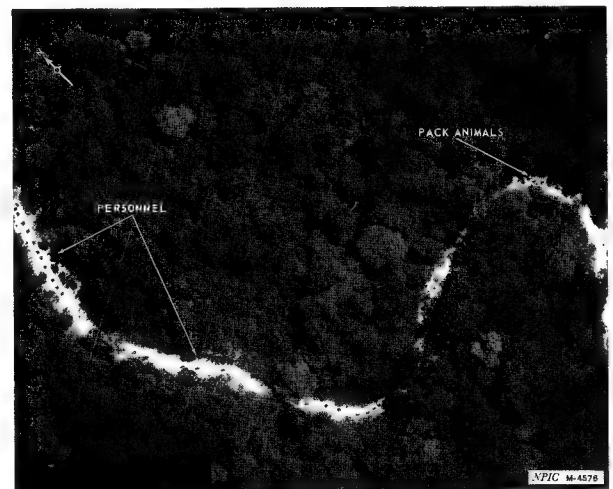


FIGURE 14. PROBABLE INFILTRATION ACTIVITY, ROUTE 1597.

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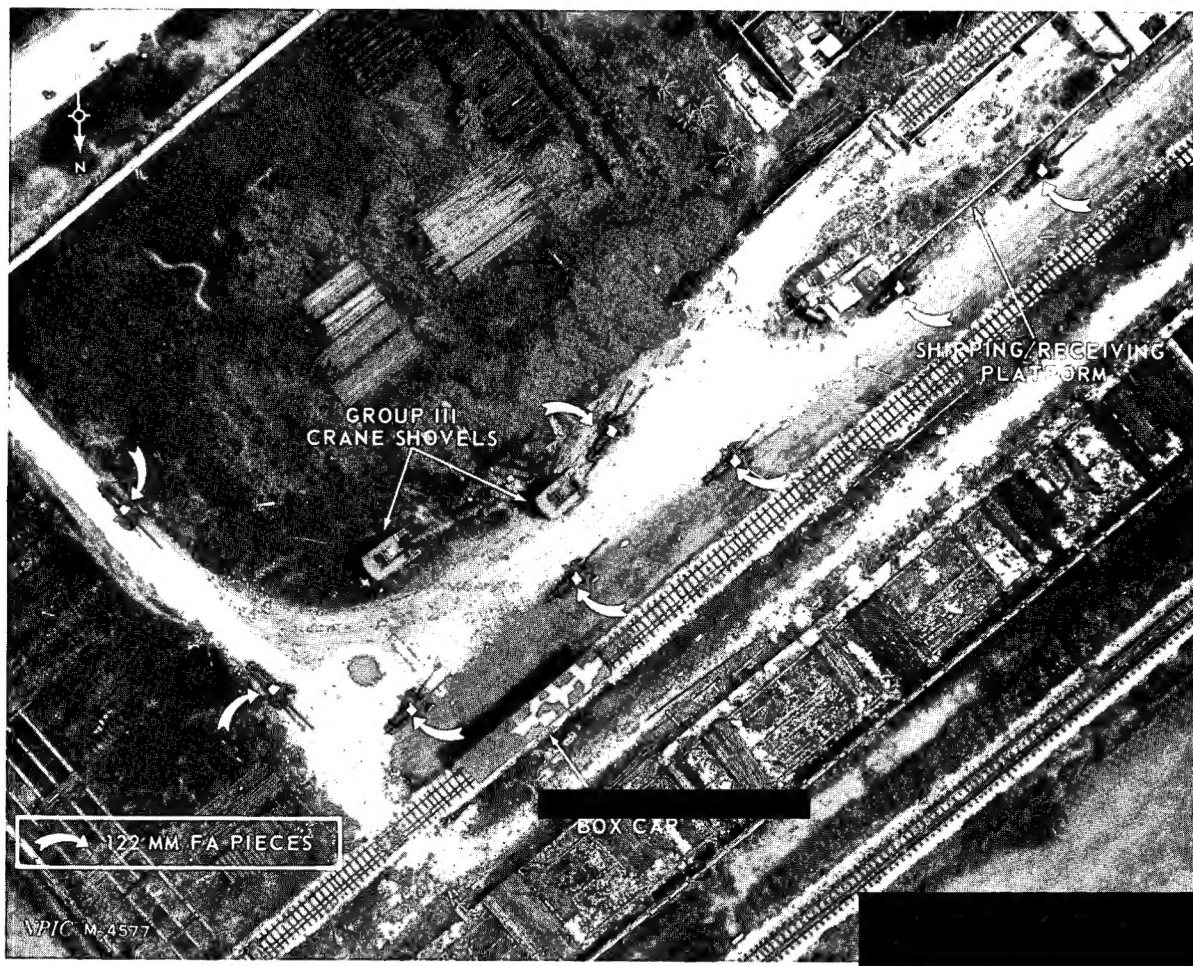
12. Field Artillery Transshipment Activity

Photography of [REDACTED] reveals eight 122mm field guns (D-74) located on a rail siding at the junction of the Hanoi-Ping Hsiang and Hanoi-Lao Cai rail lines 5.2 nm northeast of Hanoi. The Gia Thuong Artillery Repair/Maintenance Facility is located 3 nm to the SSW.

The guns appear to be new or at least newly painted. Their location adjacent to a

shipping/receiving platform suggests imminent shipping or recent arrival. There are no prime movers in the area, nor are there any flat cars, the probable rail carriers for heavy weapons (Figure 15).

Two Group III crane shovels without booms are parked with the FA guns. Crane shovels of this configuration have been observed in Haiphong.



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FIGURE 15. FIELD ARTILLERY TRANSSHIPMENT ACTIVITY.

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13. POL Pipeline, South of 19th Parallel

A cross-country POL pipeline was identified in North Vietnam for the first time on photography of [REDACTED]. The pipeline, apparently still under construction, is located approximately 13 nm west of Vinh and extends from 18-27-00N 105-39-10E to 18-48-15N 105-48-30E for a distance of approximately 25 miles (Figure 16). Pipelines have been observed in the Hanoi-Haiphong area, but they have been relatively short and lead from off-loading areas to nearby storage areas. A pipeline of the type observed west of Vinh could substantially assist in the flow of POL to the South. The line has proved difficult to interdict and as ground scars become overgrown it will be almost impossible to detect.

Since originally sighted in [REDACTED] the pipeline has been extended northward for approximately 4 miles to its present length of 25 miles. The original northern terminus was

a POL storage area containing eight buried storage tanks dispersed along a road. Each buried tank is connected to a main pipeline; however, no main pumping facility is observed. The storage area has since been destroyed by airstrikes.

The pipeline, with short portions on the ground and the remainder buried, extends SSE, crossing under the Song Ca at 18-37-25N 105-32-30E and under the Song La Giang at 18-32-30N 105-34-25E. Before crossing the rivers the pipeline splits, joining again on the opposite bank.

The southern end of the pipeline terminates in a POL storage area under construction which consists of eight tanks connected to the main pipeline and 21 excavations for additional storage tanks.

Photography of [REDACTED] revealed no evidence of pipeline construction.

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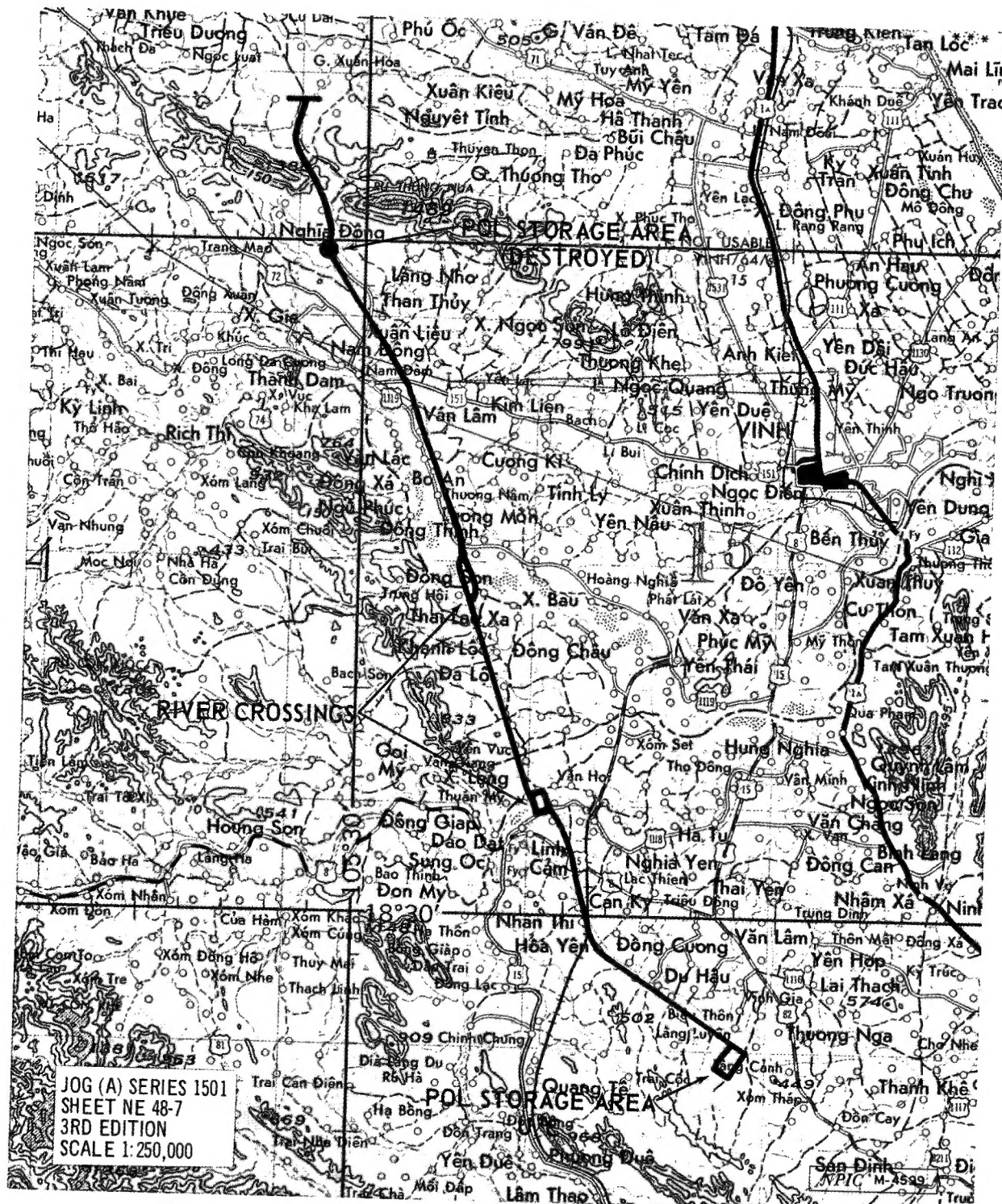


FIGURE 16. POL PIPELINE SOUTH OF 19TH PARALLEL.

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